

**SCOPSERV**  
INTERNATIONAL INC.

# ScopTEL™ IP PBX Software

## DHCP Configuration

## DHCP Configuration

DHCP detection of new devices when the ScopTEL DHCP server is the only DHCP server on the LAN.

- During DHCP acquisition a newly installed and supported SIP device can be added to the APS list automatically.
- DHCP discovery can properly detect the model number of the following supported vendors and add the device to the APS list.
  - Aastra
  - Snom
  - Polycom
  - Yealink

Server Module Pre-requisites:

- Server>Configuration>Provisioning All fields must be properly defined

The screenshot displays the 'Server Configuration' web interface. The 'Configuration' section is active, with sub-tabs for 'General', 'Provisioning', 'Proxy Settings', 'SMTP Settings', 'Performance Tuning', and 'Security (SSL)'. The 'SIP Server Address' is set to 172.16.74.1. The 'TFTP Provisioning' section shows 'Enable TFTP support?' as Yes, 'Enable Syslog Logging?' as Yes, 'Enable 'Write' permission?' as No, and 'TFTP Server Address' as 172.16.74.1. The 'HTTP Provisioning' section shows 'Enable HTTP support?' as Yes, 'Protocol' as HTTP, 'Server (Hostname or IP)' as 172.16.74.1, 'Listen on Port' as 5555, and 'TFTP Alias' as /tftpboot/.

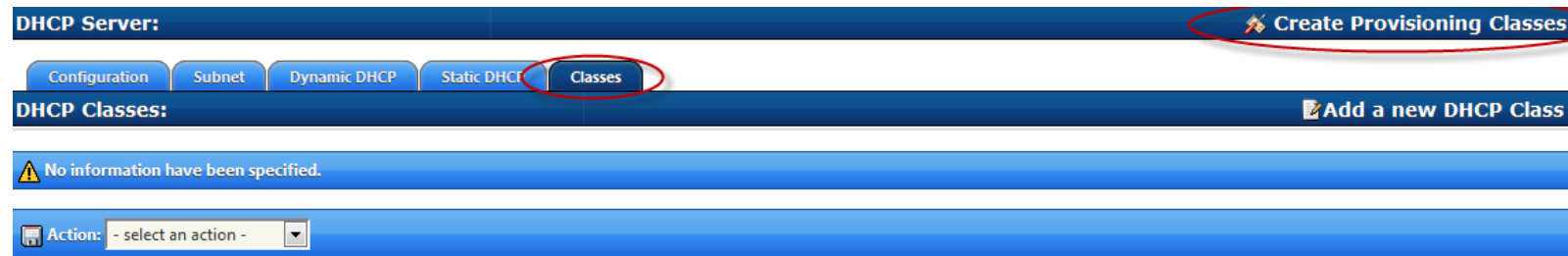
Server Configuration	
Configuration	
Configuration	
General Provisioning Proxy Settings SMTP Settings Performance Tuning Security (SSL)	
SIP Server Address: 172.16.74.1	
TFTP Provisioning	
Enable TFTP support ?	Yes
Enable Syslog Logging ?	Yes
Enable 'Write' permission ?	No
TFTP Server Address: 172.16.74.1	
HTTP Provisioning	
Enable HTTP support ?	Yes
Protocol:	HTTP
Server (Hostname or IP):	172.16.74.1
Listen on Port:	5555
TFTP Alias:	/tftpboot/



## DHCP Configuration, cont'd

### Network Module Pre-requisites:

- Network>DHCP Server must be enabled and properly configured
- Classes and Subnet>Classes must be properly defined
- DHCP Server>Classes>Create Provisioning Classes



## DHCP Configuration, cont'd

DHCP detection of new devices when the ScopTEL DHCP server is the only DHCP server on the LAN.

Network Module Pre-requisites:

- DHCP Server>Classes>Create Provisioning Classes
- Result

The screenshot shows the 'DHCP Server' configuration page, specifically the 'Classes' tab. The page title is 'DHCP Server: Create Provisioning Classes'. Below the navigation tabs (Configuration, Subnet, Dynamic DHCP, Static DHCP, Classes), there is a section for 'DHCP Classes: [1 to 27 of 27]' with an 'Add a new DHCP Class' button. A search bar is present above a table of classes. The table has columns for Name, Match, Value, and a set of action icons. The classes listed include AASTRA, AUDIOCODES, CISCO, GRANDSTREAM, LINKSYS, POLYCOM, SIPURA, SNOM, SWISSVOICE, and YEALINK, each with a corresponding MAC address and a checked status.

Name	Match	Value	
AASTRA_00085D	MAC Address	00:08:5D	<input checked="" type="checkbox"/>
AUDIOCODES_00908F	MAC Address	00:90:8F	<input checked="" type="checkbox"/>
CISCO_00036B	MAC Address	00:03:6B	<input checked="" type="checkbox"/>
CISCO_00036C	MAC Address	00:03:6C	<input checked="" type="checkbox"/>
GRANDSTREAM_000B82	MAC Address	00:0B:82	<input checked="" type="checkbox"/>
LINKSYS_000C41	MAC Address	00:0C:41	<input checked="" type="checkbox"/>
LINKSYS_000E08	MAC Address	00:0E:08	<input checked="" type="checkbox"/>
LINKSYS_000F66	MAC Address	00:0F:66	<input checked="" type="checkbox"/>
LINKSYS_001A70	MAC Address	00:1A:70	<input checked="" type="checkbox"/>
LINKSYS_001C10	MAC Address	00:1C:10	<input checked="" type="checkbox"/>
LINKSYS_001D7E	MAC Address	00:1D:7E	<input checked="" type="checkbox"/>
LINKSYS_001EE5	MAC Address	00:1E:E5	<input checked="" type="checkbox"/>
LINKSYS_001217	MAC Address	00:12:17	<input checked="" type="checkbox"/>
LINKSYS_001310	MAC Address	00:13:10	<input checked="" type="checkbox"/>
LINKSYS_00148F	MAC Address	00:14:8F	<input checked="" type="checkbox"/>
LINKSYS_001686	MAC Address	00:16:86	<input checked="" type="checkbox"/>
LINKSYS_0018F8	MAC Address	00:18:F8	<input checked="" type="checkbox"/>
LINKSYS_001839	MAC Address	00:18:39	<input checked="" type="checkbox"/>
LINKSYS_002129	MAC Address	00:21:29	<input checked="" type="checkbox"/>
LINKSYS_00226B	MAC Address	00:22:6B	<input checked="" type="checkbox"/>
LINKSYS_002369	MAC Address	00:23:69	<input checked="" type="checkbox"/>
LINKSYS_00259C	MAC Address	00:25:9C	<input checked="" type="checkbox"/>
POLYCOM_0004F2	MAC Address	00:04:F2	<input checked="" type="checkbox"/>
SIPURA_1CDF0F	MAC Address	1C:DF:0F	<input checked="" type="checkbox"/>
SNOM_000413	MAC Address	00:04:13	<input checked="" type="checkbox"/>
SWISSVOICE_000590	MAC Address	00:05:90	<input checked="" type="checkbox"/>
YEALINK_001565	MAC Address	00:15:65	<input checked="" type="checkbox"/>



## DHCP Configuration, cont'd

DHCP detection of new devices when the ScopTEL DHCP server is the only DHCP server on the LAN.

Network Module Pre-requisites:

- DHCP Server>Subnet>Interface>Classes>Include DHCP Classes
- Select all that apply to your environment and save.

**DHCP Server:**

Configuration Subnet Dynamic DHCP Static DHCP Classes

**Subnet**

General DNS Configuration Classes DHCP Options

Include DHCP Classes:

- AASTRA\_00085D
- AUDIOCODES\_00908F
- CISCO\_00036B
- CISCO\_00036C
- GRANDSTREAM\_000882
- LINKSYS\_000C41
- LINKSYS\_000E08
- LINKSYS\_000F66
- LINKSYS\_001A70
- LINKSYS\_001C10
- LINKSYS\_001D7E
- LINKSYS\_001EE5
- LINKSYS\_001217
- LINKSYS\_001310
- LINKSYS\_0014BF
- LINKSYS\_0016B6
- LINKSYS\_0018F8
- LINKSYS\_001839
- LINKSYS\_002129
- LINKSYS\_00226B
- LINKSYS\_002369
- LINKSYS\_00259C
- POLYCOM\_0004F2
- SIPURA\_1CDF0F
- SNOM\_000413
- SWISSVOICE\_000590
- YEALINK\_001565

Select all, Select none, Invert selection



## DHCP Configuration, cont'd

Navigate to Configuration>Network>General and click Edit Services

Logged as: admin

- ScopServ
- Configuration
  - Server
  - Network
    - General
    - Network
    - Firewall
    - Traffic Shaper
    - DHCP Server
    - DNS Server
    - VPN Client/Server
    - Radius Server
  - Telephony
- ScopSTATS
- Tools
- Organizing

Configuration saved.

You must click on Commit button in order to apply Change.

### Services Status:

Network:	Running
Firewall:	Running
Traffic Shaper:	Service Disabled
DHCP Server (IPv4):	Service Disabled
DHCP Relay Agent:	Service Disabled
Dynamic DNS:	Service Disabled
DNS Server:	Running
VPN Server (PPTP):	Service Disabled
OpenVPN Client/Server:	Service Disabled
Radius Server (AAA):	Service Disabled

Edit Services Refresh



## DHCP Configuration, cont'd

- Check the option for DHCP Server (IPv4)
- Apply Change

**Bootup Services:**

Start at bootup:

Network:	<input checked="" type="checkbox"/>
Firewall:	<input checked="" type="checkbox"/>
Traffic Shaper:	<input type="checkbox"/>
<b>DHCP Server (IPv4):</b>	<input checked="" type="checkbox"/>
DHCP Relay Agent:	<input type="checkbox"/>
Dynamic DNS:	<input type="checkbox"/>
DNS Server:	<input checked="" type="checkbox"/>
VPN Server (PPTP):	<input type="checkbox"/>
OpenVPN Client/Server:	<input type="checkbox"/>
Radius Server (AAA):	<input type="checkbox"/>

Apply Change Cancel

Navigate to Configuration>Network>DHCP Server and click Edit to Enable the DHCP Server

Logged as: admin

- ScopServ
- Configuration
  - Server
    - Network
      - General
      - Network
      - Firewall
      - Traffic Shaper
      - DHCP Server**
      - DNS Server
      - VPN Client/Server
      - Radius Server
- Telephony

ScopSTATS  
Tools  
Organizing  
Administration  
Options  
Configuration Wizard  
Log out

**DHCP Server:**

Configuration

**Configuration**

General

Enable the DHCP Server?  : No

Enable the DHCP Relay?  : No

Dynamically update DNS server?  : No

Edit



## DHCP Configuration, cont'd

- Check the Enable the DHCP Server?: [x]
- Save

**DHCP Server:**

Configuration

**Configuration**

General

Enable the DHCP Server?

Options

Restrict DHCP query to static Clients?:

Allow Unknown (Dynamic) Clients?:  Default: True

Allow IP Forwarding?:  Default: True

Allow BOOTP requests?:  Default: True

Dynamically update DNS server?

\* Default Lease time: 1 Day(s)

\* Maximum Lease time: 1 Week(s)

Failover / Load Balancing

Enable Failover support?

Save Cancel

- Click on Subnet
- Click on Add

**DHCP Server:**

Configuration Subnet Dynamic DHCP Static DHCP Classes

**Subnet:** Add

No information have been specified.

Action: - select an action -





## DHCP Configuration, cont'd

Fill in the Scope Range, Gateway, and other details into the General Tab, then Click on DNS Configuration.

**Subnet**

General | DNS Configuration | Classes | DHCP Options

Interface: LAN (eth1) ▾

Description:

\* Start IP Address:

\* End IP Address:

\* Gateway:

Subnet:      
If empty, the value will be auto-detected.

Netmask:      
If empty, the value will be auto-detected.

Broadcast:      
If empty, the value will be auto-detected.

Create Dummy (empty) Subnet ?



## DHCP Configuration, cont'd

- Enter in your Custom Domain Name
- Enter your DNS Server IP address(es)
- Click on Classes

**Subnet**

General DNS Configuration **Classes** DHCP Options

Domain Name:

\* Primary:  .  .  .

Secondary:  .  .  .

- Select all relevant DHCP Classes for your environment
- Click on DHCP Options

**Subnet**

General DNS Configuration **Classes** DHCP Options

Include DHCP Classes:

- AAastra\_00085D
- AUDIOCODES\_00908F
- CISCO\_00036B
- CISCO\_00036C
- CYBERDATA\_0020F7
- GRANDSTREAM\_000B82
- LINKSYS\_000C41
- LINKSYS\_000E08
- LINKSYS\_000F66
- LINKSYS\_001A70
- LINKSYS\_001C10
- LINKSYS\_001D7E
- LINKSYS\_001EE5
- LINKSYS\_001217
- LINKSYS\_001310
- LINKSYS\_0014BF
- LINKSYS\_0016B6
- LINKSYS\_0018F8
- LINKSYS\_001839
- LINKSYS\_002129
- LINKSYS\_00226B
- LINKSYS\_002369
- LINKSYS\_00259C
- PANASONIC\_0080F0
- PANASONIC\_080023
- POLYCOM\_0004F2
- SIPURA\_1CDF0F
- SNOM\_000413
- SWISSVOICE\_000590
- YEALINK\_001565

Select all, Select none, Invert selection



## DHCP Configuration, cont'd

- Enter in your custom NTP server
- Enter in your GMT time offset in seconds
- Click Add

**Subnet**

General | DNS Configuration | **DHCP Options**

Default WINS server:	<input type="text"/>
TFTP Server Name:	<input type="text"/>
Next Server (Bootp):	<input type="text"/>
Bootfile Name:	<input type="text"/>
Time Server (NTP):	<input type="text" value="pool.ntp.org"/>
Time Offset (in seconds):	<input type="text" value="-18000"/>
HTTP Server Address (Option 120):	<input type="text"/>
TFTP Server Address (Option 128):	<input type="text"/>
802.1Q VLAN ID (Option 132):	<input type="text"/>
802.1P L2 Priority (Option 133):	<input type="text"/>
Diffserv Code Point (Option 134):	<input type="text"/>
TFTP Server Address (Option 150):	<input type="text"/>
Avaya Support (Option 242):	<input type="text"/>
SVP Server Address (Option 151):	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>
OAI Server Address (Option 152):	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>

Add Cancel

- Commit Network changes
- Restart the DHCP Server Service to enable the changes

General | Network | Firewall | Traffic Shaper | **DHCP Server** | DNS Server | VPN Client/Server | Radius Server | Options Commit

**You must click on Commit button in order to apply Change.**

**Services Status:**

Network:	Running	<a href="#">Restart Network</a>	
Firewall:	Running	<a href="#">Restart Service</a>	<a href="#">Stop Service</a>
Traffic Shaper:	Service Disabled		
DHCP Server (IPv4):	Running	<a href="#">Restart Service</a>	<a href="#">Stop Service</a>
Dynamic DNS:	Service Disabled		
DNS Server:	Running	<a href="#">Restart Service</a>	<a href="#">Stop Service</a>
VPN Server (PPTP):	Service Disabled		
OpenVPN Client/Server:	Service Disabled		
Radius Server (AAA):	Service Disabled		

Edit Services Refresh

## DHCP Configuration, cont'd

If you want Asterisk to auto create peers to for the Automatic Provisioning System then proceed with these optional steps. Telephony Module Pre-requisites:

- Telephony>Configuration>Channels>SIP Channel>Auto-Create Peers=yes
- WARNING Auto-Create Peers can be vulnerable to malicious SIP attacks so the server should not have SIP ports exposed to the public (firewall your SIP ports to external subnets and follow ScopServ security best practices).

The screenshot shows the Asterisk web interface for configuring SIP Channels. The 'SIP Channel' tab is selected, and the 'Auto-create Peers' option is checked and circled in red. Other settings include Port (UDP) at 5060, Bind Address (UDP) empty, and various SIP options like 'Record SIP History' (No) and 'Enable RTP Auto Framing' (No).

Telephony Settings: Channels	
Channels	
Configuration Channels Language Time Zones Asterisk Manager Monitoring Scheduled Tasks Hangup Causes Synchronization	
General RTP Options Codecs SIP Channel IAX Channel UDPTL (T.38) Jitter Buffer Guest Account	
Port (UDP):	5060
Bind Address (UDP):	
Enable support for SIP TCP ?:	No
Enable support for SIP TLS (secure) ?:	No
Enable Outbound Proxy support ?:	No
SIP Options	
Realm for Digest Authentication:	scopserv
User Agent:	Asterisk PBX (ScopServ)
Record SIP History:	No
Auto-create Peers:	Yes
Enable RTP Auto Framing ?:	No
Enable DNS SRV lookups on outbound calls:	No
Max length of incoming registration:	3600
Default length of incoming/outgoing registration:	120



## DHCP Configuration, cont'd

DHCP detection of new devices when the ScopTEL DHCP server is the only DHCP server on the LAN.

Telephony Module Pre-requisites:

- Telephony>Configuration>Provisioning
- Change the Unprovisioned Feature PIN to a complex number for security
- Enter the SIP Server address required for registration
- Save and Commit changes.

**Telephony Settings: Configuration**

Configuration Channels Language Time Zones Asterisk Manager

**Configuration**

General Telephony Modules Advanced Modules Commit Menu Feat

Recording/Monitoring Sound Manager **Provisioning** Security

Unprovisioned Feature PIN: 7788

Default SIP Server: 172.16.74.1

Edit





DHCP detection of new devices when the ScopTEL DHCP server is the only DHCP server on the LAN

#### USAGE

- Plug a supported SIP device into the voice subnet
- Wait for it to boot (it may reboot after it downloads its configuration from the server for the first time)
- Once the phone boots up you should see its MAC address in the APS list as an unprovisioned device
- Once the phone displays UNPROV on its display you can begin the registration process
  - Dial any phone number to hear the password prompt
  - Enter the Provisioning PIN number defined in Telephony>Configuration>Provisioning using the keypad
  - Enter a defined but unused extension number using the keypad when prompted
  - Edit the MAC address in the APS list and change any required settings like the template used, name, soft key assignments etc.
  - Commit
  - Reboot the phone to download the final configurations

